CLAIMS

What is claimed is:

1. A toy water gun, comprising:

a housing including a handle with a trigger and a water ejection nozzle located thereon;

a water supply tank connected to the housing which can be filled with water;

a water pressure chamber that includes at least one fixed wall, a first end wall, and a moveable wall which substantially sealingly engages the at least one fixed wall and is slidable away from the first end wall as water is pumped into the water pressure chamber and toward the first end wall as water is discharged;

an air pressure chamber located on an opposite side of the moveable wall from the water pressure chamber that is pressurizable with compressed air to bias the moveable wall toward the first end wall;

a pump and a selector valve assembly connected thereto which, in a first state, allows air to be pumped by the pump into the air pressure chamber for pressurizing the air pressure chamber with compressed air and, in a second state, places the pump in communication between the water supply tank and the water pressure chamber to allow water to be pumped by the pump from the supply tank to the water pressure chamber; and

a release valve in fluid communication with the water pressure chamber so that actuation of the release valve allows a stream of water to be ejected from the nozzle due to the compressed air acting on the moveable wall.

2. The toy water gun of claim 1, wherein the selector valve assembly includes a manual actuator for placing the selector valve assembly in the first state.

3. The toy water gun of claim 1, wherein the selector valve assembly is moved automatically from the first state to the second state upon a predetermined air pressure level being attained in the air pressure chamber.

4. The toy water gun of claim 1, wherein the selector valve assembly includes a valve air chamber in communication with the air pressure chamber, and when a predetermined air pressure is achieved in the air pressure chamber, pressurized air in the valve air chamber automatically switches the valve assembly to the second state.

5. The toy water gun of claim 4, wherein an air pressure release valve is located in the valve air chamber, the air pressure valve being set to open upon a predetermined air pressure being achieved so that the air pressure acts upon a valve body in the selector valve assembly to move the valve body from a first position, in which the pump is in communication with ambience on an intake stroke and the air chamber on a compression stroke, to a second position, in which the pump is in communication with the water supply tank on the intake stroke and the water pressure chamber on the compression stroke.

6. The toy water gun of claim 4, wherein when the selector valve assembly is moved from the second state to the first state, existing air pressure within the air pressure chamber is released.

7. The toy water gun of claim 4, further comprising a transfer valve assembly in communication between the water supply tank, the pump, and the water pressure chamber, the transfer valve assembly including a check valve located between the transfer valve assembly and the water supply tank to only allow flow of water from the water supply tank through a first conduit toward the pump, and a second check valve located in a second supply conduit to only allow flow of water from the pump to the water pressure chamber.

8. The toy water gun of claim 7, further comprising a third conduit located between the transfer valve assembly and the water supply tank, and a pressure release valve located in the third conduit to discharge excess pressurized water from the water pressure chamber back into the water supply tank.

9. The toy water gun of claim 1, further comprising an air pressure release valve in communication with the air pressure chamber.

10. The toy water gun of claim 1, wherein the fixed wall is tubular and the moveable wall is cup-shaped, and a seal is located on an outer surface of the moveable wall which sealingly and slidingly engages an inner surface of the fixed wall.

11. A pressurized water ejecting toy, comprising:

a water supply tank which can be filled with water;

a water pressure chamber that includes at least one fixed wall, a first end wall, and a moveable wall which substantially sealingly engages the at least one fixed wall and is slidable away from the first end wall as water is pumped into the water pressure chamber and toward the first end wall as water is discharged;

an air pressure chamber located on an opposite side of the moveable wall from the water pressure chamber that is pressurizable with compressed air to bias the moveable wall toward the first end wall;

a selector valve assembly connected between the water supply tank, the water pressure chamber, the air pressure chamber and a pump, the selector valve assembly having a first state, in which air can be pumped into the air pressure chamber for pressurizing the air pressure chamber with compressed air, and a second state, in which the pump is in communication between the water supply tank and the water pressure chamber to allow water to be pumped from the supply tank to the water pressure chamber; and

a release valve in fluid communication with the water pressure chamber so that actuation of the release valve allows a stream of water to be ejected due to compressed air acting on the moveable wall.

12. The toy of claim 11, wherein the selector valve assembly includes a manual actuator for movement to the first state.

13. The toy of claim 11, wherein the selector valve assembly is moved automatically from the first state to the second state upon a predetermined air pressure level being attained in the air pressure chamber.

14. The toy of claim 11, wherein the selector valve assembly includes a valve air chamber in communication with the air pressure chamber, and when a predetermined air pressure is achieved in the air pressure chamber, pressurized air in the valve air chamber automatically switches the valve assembly to the second state.

15. The toy of claim 14, wherein an air pressure valve is located in the valve air chamber, the air pressure valve being set to open upon a predetermined air pressure being achieved so that the air pressure acts upon a valve body in the selector valve assembly to move the valve body from a first position, in which the pump is in communication with ambience on an intake stroke and the air chamber on a compression stroke, to a second position, in which the pump is in communication with the water supply tank on the intake stroke and the water pressure chamber on the compression stroke.

16. The toy of claim 14, wherein when the selector valve assembly is moved from the first state to the second state, existing air pressure within the air pressure chamber is released.